BELIMO

Duct Air Quality Sensor

To measure CO₂ only or integrated temperature, humidity and VOC in one device. 0 to 5/10 V outputs and an optional LCD display. See options below for integrated sensor options.

5 YEAR WARRANTY

Type Overview

Type	Output Signal Active CO₂	Output Signal Active VOC	Output Signal Active Temperature	Output Signal Active Humidity	Output Signal Active CO₂/VOC	Display Type
22DC-51	DC 0...5 V, DC 0...10 V	-	-	-	-	-
22DCK-51	DC 0...5 V, DC 0...10 V	DC 0...5 V, DC 0...10 V	DC 0...5 V, DC 0...10 V	-	DC 0...5 V, DC 0...10 V	-
22DCM-51	DC 0...5 V, DC 0...10 V	DC 0...5 V, DC 0...10 V	DC 0...5 V, DC 0...10 V	-	-	-
22DCV-51	DC 0...5 V, DC 0...10 V	DC 0...5 V, DC 0...10 V	-	-	-	-
22DTC-51	DC 0...5 V, DC 0...10 V	-	DC 0...5 V, DC 0...10 V	-	-	-
22DTM-51	DC 0...5 V, DC 0...10 V	-	DC 0...5 V, DC 0...10 V	DC 0...5 V, DC 0...10 V	-	-
22DTM-5106	DC 0...5 V, DC 0...10 V	-	DC 0...5 V, DC 0...10 V	DC 0...5 V, DC 0...10 V	-	LCD

Technical Data

Electrical Data	Power Supply DC	15...24 V, ±10%, 1.5 W
	Power Supply AC	24 V, ±10%, 2.9 VA
	Cable Entry	cable gland PG11 Ø6 to 10 mm, with strain relief Ø6 to 8 mm, 1/2" conduit adapter included
Functional Data	Sensor Technology	NDIR (non dispersive infrared) with stainless steel wire mesh filter, dual channel calibration
	Output Signal Active Note	output DC 0 to 5/10 V with jumper adjustable voltage output: min. 10 kΩ load
	Display	LCD, measured values: CO₂, temperature, rH, VOC
	Media	air
Measuring Data	Measured Values	CO₂ VOC mix CO₂/VOC temperature relative humidity
	Measuring Range CO₂	0 to 2000 ppm
	Measuring Range Humidity	0 to 100% RH
	Measuring range temperature	40°F to 140°F [0°C to 50°C]
	Accuracy CO₂	±75 ppm; >750 ppm: ±10% of measuring value
	Accuracy Humidity	±2% between 10 to 90% RH @ 70°F [21°C]
	Accuracy temperature passive	±0.5 °C @ 21 °C
	Operating Condition Air Flow	min. 1 ft/s [0.3 m/s] max. 33 ft/s [10 m/s]

Materials	Cable Gland	PA6, black
	Housing	cover: lexan, Belimo orange NCS S0580-Y6OR base: lexan, Belimo orange NCS S0580-Y6OR seal: 0467 NBR70, black
	Probe Material	PA6, black
Safety Data	Ambient Humidity	85% RH non-condensing
	Ambient temperature	32°F to 120°F [0°C to 50°C]
	Medium temperature	32°F to 120°F [0°C to 50°C]
	Operating Condition Air Flow	min. 1 ft/s [0.3 m/s] max. 33 ft/s [10 m/s]
	Protection Class IEC/EN	III safety extra-low voltage (selv)
	Protection Class UL	UL Class 2 Supply
	Certification IEC/EN	IEC/EN 60730-1
	Certification UL	pending
	Degree of Protection IEC/EN	IP65
	Degree of Protection NEMA/ UL	NEMA 4X
	Quality Standard	ISO 9001
	Weight	0.26 lbs

Safety Notes

⚠️ The installation and assembly of electrical equipment should only be performed by authorized personnel.

The product should only be used for the intended application. Unauthorized modifications are prohibited! The product must not be used in relation with any equipment that in case of a failure may threaten, directly or indirectly, human health or life or result in danger to human beings, animals or assets. Ensure all power is disconnected before installing. Do not connect to live/operating equipment.

Please comply with
• Local laws, health & safety regulations, technical standards and regulations
• Condition of the device at the time of installation, to ensure safe installation
• This data sheet and installation manual

Remarks

Information Self-Calibration Feature CO_2

All gas sensors are subject to drift caused by components, resulting in regular re-calibration or replacement units. However the dual channel technology integrates automatic self-calibration technology vs common used ABC-Logic sensors. Dual channel self-calibration technology is ideally suited for applications operating 24/7 hours such as hosiptals or other commerical applications. Manual calibration is not required.
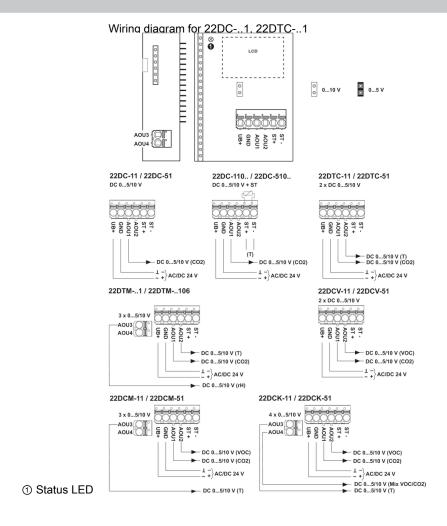
Accessories

Scope of Delivery	mounting flange cable gland nut conduit 1/2" NPT	
Optional Accessories	**Description**	**Type**
	mounting flange for duct humidity and CO_2 sensor	A-22D-A34

Wiring Diagram

Wiring diagram for 22DC-..1, 22DTC-..1

LCD

0...10 V   0...5 V

AOU3
AOU4

UB+
GND
AOU2
AOU1
ST+
ST -

22DC-11 / 22DC-51
DC 0...5/10 V

UB+
GND
AOU1
AOU2
ST +
ST -

→ DC 0...5/10 V (CO2)
→ AC/DC 24 V

22DC-110.. / 22DC-510..
DC 0...5/10 V + ST

UB+
GND
AOU1
AOU2
ST +
ST -

(T)
→ DC 0...5/10 V (CO2)
→ AC/DC 24 V

22DTC-11 / 22DTC-51
2 x DC 0...5/10 V

UB+
GND
AOU1
AOU2
ST +
ST -

→ DC 0...5/10 V (T)
→ DC 0...5/10 V (CO2)
→ AC/DC 24 V

22DTM-..1 / 22DTM-..106
3 x 0...5/10 V

AOU3
AOU4

UB+
GND
AOU1
AOU2
ST +
ST -

→ DC 0...5/10 V (T)
→ DC 0...5/10 V (CO2)
→ AC/DC 24 V
→ DC 0...5/10 V (rH)

22DCV-11 / 22DCV-51
2 x DC 0...5/10 V

UB+
GND
AOU1
AOU2
ST +
ST -

→ DC 0...5/10 V (VOC)
→ DC 0...5/10 V (CO2)
→ AC/DC 24 V

22DCM-11 / 22DCM-51
3 x 0...5/10 V

AOU3
AOU4

UB+
GND
AOU1
AOU2
ST +
ST -

→ DC 0...5/10 V (VOC)
→ DC 0...5/10 V (CO2)
→ AC/DC 24 V
→ DC 0...5/10 V (T)

22DCK-11 / 22DCK-51
4 x 0...5/10 V

AOU3
AOU4

UB+
GND
AOU1
AOU2
ST +
ST -

→ DC 0...5/10 V (VOC)
→ DC 0...5/10 V (CO2)
→ AC/DC 24 V
→ DC 0...5/10 V (Mix VOC/CO2)
→ DC 0...5/10 V (T)

① Status LED

Dimensions

Ø 0.77" [19.6 mm]

1.97" [50 mm]

Ø 0.16" [4 mm]

1.93" [49.0 mm]

7.14" [181.4 mm]

Ø 0.77" [19.5 mm]

5.32" [135.2 mm]

1.63" [41.35 mm]

4.17" [105.8 mm]

3.26" [82.7 mm]

0.9" [22.9 mm]